CLAIMS

1. A method of representing an object appearing in a still or video image, by processing signals corresponding to the image, the method comprising deriving a curvature scale space (CSS) representation of the object outline by smoothing the object outline, deriving at least one additional parameter reflecting the shape or mass distribution of a smoothed version of the original curve, and associating the CSS representation and the additional parameter as a shape descriptor of the object.

2. A method as claimed in claim 1 wherein an additional parameter relates to the smoothed outline corresponding to a peak in the CSS image.

3. A method as claimed in claim 2 wherein an additional parameter relates to the smoothed outline corresponding to the highest peak in the CSS image.

SUB A1 4. A method as claimed in any one of claims 1 to 3 wherein an additional parameter corresponds to the eccentricity of the outline.

5. A method as claimed in any one of claims 1 to 4 wherein an additional parameter corresponds to the circularity of the outline.

6. A method as claimed in any one of claims 1 to 5 wherein at least one additional parameter uses a region-based representation.

7. A method as claimed in claim 6 wherein an additional parameter is a region moment invariant.

SUB A27 8. A method as claimed in claim 6 or claim 7 wherein an additional parameter is based on Fourier descriptors.

9. A method as claimed in claim 6 wherein an additional parameter is based on Zernike moments of the region enclosed by the outline.

SUB A37 10. A method of representing a plurality of objects appearing in a still or video image, by processing signals corresponding to the images, the method comprising, for each object outline, determining if there are significant changes

in curvature in the object outline, and, if there are significant changes in curvature of the object outline, then deriving a shape descriptor using a method as claimed in any one of claims 1 to 9 and, if there are no significant changes in curvature of the object outline, then deriving a shape descriptor including at least said additional parameter reflecting the shape of the object outline.

11. A method as claimed in claim 10 wherein the additional parameter for an object outline having no significant changes in curvature is based on region moment invariants, Fourier descriptors or Zernike moments of the outline.

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12. A method of searching for an object in a still or video image by processing signals corresponding to images, the method comprising inputting a query in the form of a two-dimensional outline, deriving a descriptor of said outline using a method as claimed in any one of claims 1 to 11, and comparing said query descriptor with each descriptor for stored objects using a matching procedure using the CSS values and the additional parameters to derive a similarity

measure, and selecting and displaying at least one result corresponding to an image containing an object for which the comparison indicates a degree of similarity between the query and said object.

13. A method as claimed in claim 12 wherein the similarity measure is based on M where M = a*GP-S+CSS-S where GP-S is the similarity measure between additional parameters of the compared object outlines and CSS-S is the similarity measure between the CSS values for the compared object outlines, and a is a constant.

14. A method as claimed in claim 13 where a depends on the number and height of the CSS peaks.

Sub A5) 15. A method as claimed in claim 13 or claim 14 where a=1 when there are no CSS peaks associated with either outline and a=0 when at least one outline has a CSS peak.

16. A method of searching for an object in a still or video image by processing signals corresponding to images, the method comprising calculating a similarity measure

between two object outlines using a CSS representation of said outlines and additional parameters reflecting the shape of or mass distribution within the original outline or a smoothed version of the outline.

17. An apparatus adapted to implement a method as claimed in any one of claims 1 to 16.

18. A computer program for implementing a method as claimed in any one of claims 1 to 16.

19. A computer system programmed to operate according to a method as claimed in any one of claims 1 to 16.

20. A computer-readable storage medium storing computer-executable process steps for implementing a method as claimed in any one of claims 1 to 16.

21. A method of representing objects in still or video images substantially as hereinbefore described with reference to the accompanying drawings.

22. A method of searching for objects in still or video images substantially as hereinbefore described with reference to the accompanying drawings.

23. A computer system substantially as hereinbefore described with reference to the accompanying drawings.